Applic. No. 09/977,787
Response Dated June 24, 2004
Responsive to Office Action of March 24, 2004

Amendments to the Claims:

Claim 1 (currently amended). A circuit for testing a data memory, comprising:

a processing unit connected to the data memory, said processing unit:

applying a first function to a predetermined test pattern for generating therefrom data items to be written to the data memory, said processing unit;

reading the data items from the data memory and applying a second function to the data items read from the data memory for generating therefrom test data items[[;]], wherein the second function [[is]] being a reciprocal function of the first function and a number of the data items [[is]] being greater than a number of the test data items; [[and]]

a test device connected to and outputting to said processing unit function data items defining the first function and the second function for said processing unit; and

a comparison device:

Page 2 of 11

being connected to said processing device and to said

data memory;

receiving test data from the data memory; and

determining if the data memory is faulty based upon a

comparison of the test data items produced by said

processing device and the stored data items read from the

data memory.

2 (original). The circuit according to claim 1, wherein a
number of the data items read from the data memory is greater
than a number of the test data items generated therefrom.

3 (original). The circuit according to claim 1, wherein a
number of the data items generated from the test pattern for
writing to the data memory is greater than a number of the
test data items forming the test pattern.

4 (currently amended). The circuit according to claim 1,
~~which comprises a comparison device connected to said~~
~~processing device and configured to determine from the test~~
~~data items produced by said processing device from the stored~~
~~data items read from the data memory whether the data memory~~
~~is faulty~~ wherein said comparison device outputs a fault

Applic. No. 09/977,787
Response Dated June 24, 2004
Responsive to Office Action of March 24, 2004

signal as soon as a difference exists between the test data

items produced by said processing device and the stored data

items read from the data memory.

5 (original). The circuit according to claim 1, which

comprises a buffer store connected between said processing

unit and the data memory, for intermediately storing the data

items produced from the test pattern data item and writing to

the data memory.

6 (original). The circuit according to claim 1, which

comprises a buffer store connected between said processing

unit and the data memory, for intermediately storing the data

items read from the data memory and forwarding the data items

for processing in said processing unit.

7 (original). The circuit according to claim 1, which

comprises a first buffer store connected between said

processing unit and the data memory, for intermediately

storing the data items produced from the test pattern data

item and writing to the data memory, and a second buffer store

connected between said processing unit and the data memory,

for intermediately storing the data items read from the data

memory and forwarding the data items for processing in said

processing unit.

Applic. No. 09/977,787
Response Dated June 24, 2004
Responsive to Office Action of March 24, 2004

8 (original). The circuit according to claim 1 commonly

integrated in a memory module together with the data memory.

9 (currently amended). A method of testing a data memory,

which comprises the following steps:

receiving a predetermined test pattern data item;

processing the test pattern data item with a first function to

produce data items for the data memory with a greater data

width than the test pattern data item;

storing the data items in the data memory;

reading the stored data items from the data memory;

processing the stored data items with a second function being

a reciprocal function of the first function, to produce test

data items and to check a functionality of the data memory,

and thereby defining the first function and the second

function by function data items predetermined by a test

device; and

Page 5 of 11

detecting a fault in the data memory by comparing a plurality

of the test data items with one another.

10 (currently amended). The method according to claim 9,

which comprises ~~comparing a plurality of the test data items~~

~~with one another in order to detect any fault in the data~~

~~memory~~ checking a functionality of the data memory by

comparing the test data items and the stored data items read

from the data memory.

11 (original). The method according to claim 9, which

comprises using the predetermined test pattern data item as a

stored data item for the data memory.

12 (original). The method according to claim 9, which

comprises storing the data items at one address in the data

memory.

13 (original). The method according to claim 9, which

comprises reading the stored data items from one address in

the data memory.